THE JOURNAL OF PHILOSOPHY PSYCHOLOGY AND SCIENTIFIC METHODS

VOL. XIII. NO. 6: MARCH 16, 1916

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PUBLISHED FORTNIGHTLY BY
THE SCIENCE PRESS
LANCASTER, PA.
AND
NEW YORK: SUB-STATION 84

THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

All communications to the Editors should be addressed to PROFESSOR FREDERICK J. E. WOODBRIDGE, or DR. WENDELL T. BUSH, Columbia University, New York City.

Subscriptions and advertisements should be sent to THE JOURNAL OF PHILOSOPHY, Sub-Station 84, New York City. The annual subscription price (twenty-six numbers) is $3.00 and the charge for single numbers is 15 cents. Advertising rates will be forwarded on application.

Entered as second class matter, January 19, 1904, at the Post Office at Lancaster, Pa., under Act of Congress of March 3, 1879.

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VOL. XIII, No. 6. MARCH 16, 1916

THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS

THE RELATIVE MEMORY VALUES OF DUPLICATION AND VARIATION IN ADVERTISING

THE investigation to be described in this paper is a continuation of one recently published entitled, "The Relative Importance of Size and Frequency in Forming Associations."[1] In that paper, the relative memory values of a full-page advertisement shown once, a half-page shown twice, a quarter-page shown four times, and an eighth-page shown eight times were determined. In all cases where an advertisement appeared more than once, exact duplicates were used.

The question then arose, which has the greater memory value, two or more duplications of the same advertisement, or two or more advertisements of the same commodity, each advertisement differing from the other either in picture, or in wording, or in both? The following experiment was devised to test this point.

Two dummies were prepared, one of which contained advertisements which when repeated were duplicates. The other consisted of different advertisements of the same commodity, but the advertisements were variations, not duplicates. The first dummy, in which duplicates were used, was made up as follows:

4 full-page advertisements appeared once.
4 full-page advertisements appeared twice.
4 full-page advertisements appeared 4 times.

4 half-page advertisements appeared once.
4 half-page advertisements appeared twice.
4 half-page advertisements appeared 4 times.

4 quarter-page advertisements appeared once.
4 quarter-page advertisements appeared twice.
4 quarter-page advertisements appeared 4 times.

[1] This JOURNAL, Vol. XII., pages 477 ff.

The second dummy was made up in the same way, variations of advertisements of the same commodity being used instead of duplicates. The advertisements were all the size of those contained in the *Saturday Evening Post*. The same subjects, 40 in number, were used in both tests. It is frankly acknowledged that too few subjects were employed, but since the results agree so closely with those of others who have investigated the first part of the problem, it is believed that a publication of our findings is warranted.

Each subject was handed one of the dummies and was told to look it over at his leisure, turning each page of the advertising section. The average time taken by each subject with each dummy was about 10 minutes. After finishing with the dummy, he was instructed to write down all that he could remember about the advertisements which he had seen. One week or more afterwards, he was handed the other dummy and given the same instructions. Half of the subjects started with the dummy containing duplicates; the other half with the dummy containing variations.

Results

The results obtained from the first dummy are presented in the table below. The figures show the total number of credits received by each form of presentation of the material. Since in both dummies certain advertisements were shown but once, the average of the results was used to determine the value of the advertisements shown but once:

	Once	Twice	4 Times
Quarter page	16	26	45
Half page	42	37	83
Full page	47	80	108

If the quarter page shown once is considered the standard of stimulation, the half page shown once and the quarter page twice represent a doubling of the stimulation. Were both repetition and increase in size of equal value, the figures for the half page appearing once and the quarter page appearing twice should be the same, but they are not, indicating rather that size is a more important factor than repetition. This point will shortly be considered more in detail. Similarly, the full page shown once, the half page shown twice, and the quarter page shown four times represent four times the amount of stimulation. The full page shown twice and the half page shown four times are eight times the standard stimulus and the full page shown four times is sixteen times the standard.

If the table given above is reduced to ratios, the quarter page appearing once being taken as the standard, the following table is obtained:

	Once	Twice	4 Times
Quarter page	1.00	1.62	2.82
Half page	2.00	2.32	5.19
Full page	2.94	5.00	6.76

If, from this table, another one is prepared, showing the effect of constantly doubling the amount of stimulation, the following is obtained:

Units of Stimulation				
1	2	4	8	16
1.00	2.00 1.62	2.94 2.32 2.82	5.00 5.19	6.76
Average 1.00	1.81	2.69	5.10	6.76

These ratios vary approximately as the 1.35 root of the amount of the stimulus.

The differences in memory value between repetition and size have been disregarded in the tables so far. The table given below shows the effect upon memory of increasing size. The quarter page, no matter whether it is presented once, twice, or four times, is considered as the standard, and the half- and full-page values are reduced to ratios of the quarter page.

	Quarter	Half	Full
Once	1.00	2.00	2.94
Twice	1.00	1.42	3.08
4 times	1.00	1.84	2.40
Average	1.00	1.76	2.80

These ratios vary approximately as the 1.3 root of the number of presentations or amount of stimulation, the 1.3 root of 1 being 1, of 2 approximately 1.70, and of 4 about 2.9.

Before trying to establish correlations between these results and those of other investigators, I shall present the rest of my material. When all the data are at hand, definite relations will be easier to establish.

Turning now to a consideration of the effects of frequency of insertion, we regard one presentation of the material as the standard and reduce the other values to ratios of it. The table showing these ratios follows:

	Once	Twice	4 Times
Quarter page	1.00	1.63	2.81
Half page	1.00	1.16	2.60
Full page	1.00	1.70	2.30
Average	1.00	1.49	2.57

Here we find that the ratios vary approximately as the 1.6 root of the number of presentations.

The conclusion which we are forced to accept by this part of the experiment is that size is of more importance in the formation of associations than repetition. This point will be considered more in detail at a later period.

With the second dummy, which was made up of varied advertisements of the same commodity where repetition was necessary, the following totals were received by each of the different arrangements:

	Once	Twice	4 Times
Quarter page	16	46	85
Half page	32	86	117
Full page	47	108	149

Reducing this table to ratios of one presentation of the quarter page, as was done with the other dummy, we obtain the following:

	Once	Twice	4 Times
Quarter page	1.00	2.88	5.31
Half page	2.00	5.37	7.31
Full page	2.94	6.75	9.31

Another table, showing the effects of repeatedly doubling the amount of stimulation, follows:

Units of Stimulation				
1	2	4	8	16
1.00	2.00 2.88	2.94 5.37 5.31	6.75 7.31	9.31
Average 1.00	2.44	4.54	7.03	9.31

These figures do not follow an X^n curve. But they do indicate quite forcibly that variability is a more important consideration than duplication in advertising.

Turning now to the consideration of the effect of size, the following table gives the ratios, considering the quarter page as the standard:

	Quarter	Half	Full
Once	1.00	2.00	2.94
Twice	1.00	1.84	2.35
4 times	1.00	1.38	1.76
Average	1.00	1.74	2.35

These figures agree fairly well with the results obtained from the dummy containing duplicates, giving, however, a slightly lower ratio for the full page. The average of the two is given below:

	Quarter	Half	Full
Duplicates	1.00	1.76	2.80
Variations	1.00	1.74	2.35
Average	1.00	1.75	2.58

A comparison of these results with those of other experiments will now be made. Scott[2] found the following ratios, his results being uncorrected for familiarity:

	Quarter	Half	Full
Recognition	1.00	2.32	3.74
Recall	1.00	2.52	5.53
Average	1.00	2.42	4.64

His general conclusion is that there is a more than proportionate increase in memory value with increase in size of the advertisements.

Starch[3] gives the following figures. Where the ratios representing the memory value are uncorrected for familiarity he obtained the first set of ratios; where correction was made for familiarity, he obtained the second set of values:

Quarter	Half	Full	Two Pages
1.00	2.43	5.23	6.98
1.00	1.77	3.44	4.41

Starch's results agree with Scott's in that, when uncorrected for familiarity, they show a more than proportionate increase in memory value with increase in the amount of space used. Where familiarity is allowed for, however, the ratios show a less than proportionate increase.

Strong[4] gives the results of several experiments, showing the effect of increasing space. His ratios follow:

[2] Scott, W. D. "The Psychology of Advertising," pages 168–169.
[3] Starch, D. "Advertising," pages 30 and 48.
[4] Strong, E. K. *Psychol. Rev.*, Vol. 21, pages 137 ff.

	Quarter	Half	Full
(*A*)	1.00	1.41	2.15
(*B*)	1.00	1.11	1.13
(*C*)	1.00	2.39	3.65
(*D*)	1.00	1.53	2.34
(*E*)	1.00	1.66	2.41
Average	1.00	1.62	2.34

Strong's results indicate a less than proportionate gain in memory value with increase in size in all cases but one.

If we take the results of all of these investigations and average the ratios, it may bring out an approximate truth. In averaging the ratios, all of the experiments will be considered to be of equal value, no allowance being made for the greater number of subjects used in certain of the experiments. The ratios are given below:

	Quarter	Half	Full
Scott	1.00	2.32	3.74
Scott	1.00	2.52	5.53
Starch	1.00	2.43	5.23
Starch	1.00	1.77	3.44
Strong	1.00	1.41	2.15
Strong	1.00	1.11	1.13
Strong	1.00	2.39	3.65
Strong	1.00	1.53	2.34
Strong	1.00	1.66	2.41
Adams	1.00	1.76	2.80
Adams	1.00	1.74	2.35
Average	1.00	1.87	3.16

These ratios for the half- and full-page spaces are undoubtedly higher than they should be. For in four of Strong's experiments, in one of Starch's, and in Scott's there is little if any selection of the advertisements used. The general scheme was to use the advertising section of some current magazine as the material in the experiment. The greater familiarity of the half-page and especially of the full-page advertisements undoubtedly raised the ratios for those sizes somewhat above the normal memory value. For in advertising, as elsewhere, there is a natural selection going on, so that the full pages tend to represent those firms which have advertised successfully for some little time. The mere fact of familiarity gives to these advertisements all the value to be derived from repetition, either from duplicated advertisements, or, more probably, from varied advertisements. We shall see below that variation in the form of presentation is a very important principle in relation to memory value.

If we accept Starch's[5] method of allowing for familiarity, we

[5] Starch, D. "Advertising," page 34.

find that the quarter page should be allowed 100 per cent., the half page 73 per cent., the full page 63 per cent., and the two page 62 per cent. of the values actually received. Reducing the half-page and the full-page values by these amounts in the seven experiments mentioned above, we obtain the following ratios.

	Quarter	Half	Full
Scott	1.00	1.69	2.36
Scott	1.00	1.84	3.50
Starch	1.00	1.77	3.44
Strong	1.00	.81	.71
Strong	1.00	1.74	2.30
Strong	1.00	1.13	1.48
Strong	1.00	1.21	1.52
Average	1.00	1.46	2.20

Taking the other series of experiments, in which the advertisements were selected to avoid undue familiarity, though the values were undoubtedly somewhat affected by it, we obtain the following set of ratios:

	Quarter	Half	Full
Strong	1.00	1.41	2.15
Adams	1.00	1.76	2.80
Adams	1.00	1.74	2.35
Average	1.00	1.64	2.43

A word should be said in explanation of the differences which exist between Strong's results and ours. In the first place, our advertisements were possibly slightly more familiar than his. In the second place, the time intervals in the two experiments were different. Strong presented his duplicated advertisements one month apart and tested a month later. In our experiment, the successive presentations of the material occurred within a space of 10 minutes and the test followed immediately after. The effect of this should be to raise our values somewhat,[6] since our averages are made from one, two, and four presentations of the material.

The reason for going into so much detail in connection with the influence of space is because we wish to obtain some definite data which may be used in making a comparison between the experimental results and those obtained in actual advertising business. The business returns were obtained from Shryer's "Analytical Ad-

[6] Strong, E. K. *Psychol. Rev.*, Vol. 21, page 147, footnote.

"From data now being accumulated we find that shorter intervals, as one week, give ratios indicating a greater effect from two or four presentations than shown here."

vertising,"[7] where he shows the number of inquiries received by quarter-page, half-page, full-page, two-page, and three-page advertisements.

His results show the total number of insertions of the advertisements of each size, the total number of inquiries, the advertising cost, and the cash returns. We are interested here primarily in the average number of inquiries per insertion. Obviously, Shryer's results do not indicate the actual memory value of the advertisements, though his displays must have been remembered to a certain extent to have obtained any responses at all. Naturally, also, many persons must have remembered the advertisements who did not write to him. His book, however, is one of the few places that the writer knows of where accurate, practical data may be obtained. His figures indicate the actual efficiency of his advertisements and because of this fact, it will be instructive to include his material here. His results, reduced to ratios of the average number of inquiries per insertion, follow:

	Quarter	Half	Full	2-Page	3-Page
P. 171–5	1.00	1.46	2.22	—	—
P. 190	1.00	1.60	2.27	1.01	4.17
Average	1.00	1.53	2.25	1.01	4.17

The first three of these ratios are quite trustworthy, depending as they do on 109 insertions of quarter-page advertisements, 79 insertions of the half-page, and 91 insertions of the full-page. It is interesting to note that the ratios, if we except the one representing the two-page value, vary approximately as the 1.7 root of the space occupied by the advertisement. It seems probable, everything considered, that the value of space varies somewhere between the 1.35 root and the square root of the space occupied, depending upon the conditions under which the experiment is performed. The most probable value is in the neighborhood of the 1.7 root. This statement holds for both memory value and actual efficiency in pulling replies.

The problem of the frequency in insertion of the advertisement is the next one which needs discussion. A comparatively slight amount of work has been done on this point, so the facts are not so definitely known. A summary of the experiments which have been performed will disclose the available data.

Strong's[8] results show the ratios for one, two, and four presenta-

[7] Shryer, W. A. "Analytical Advertising," pages 171–175, 190.

[8] Strong, E. K. *Psychol. Rev.*, Vol. 21, page 146.

tions to be 1.00 : 1.25 : 1.62. Our results with duplicated advertisements give these ratios: 1.00 : 1.49 : 2.57. The average of the two is 1.00 : 1.37 : 2.10. It will be seen that these values are somewhat lower than those obtained for increase in size of the advertisements. It seems to be pretty well proved, then, that size is a more important factor from the standpoint of memory than is frequency of insertion where the repeated advertisements are exact duplicates.

A comparison will again be made with the practical results which are obtained by working over the figures given by Shryer.[9] He gives a large number of figures showing the results of consecutive advertising. The number of inquiries received from the first, second, and so on up to the seventh insertion of the advertisement, are given. Since both the number of insertions of the advertisement and the resulting number of inquiries were so irregular, they were all reduced to ratios and the ratios averaged. The records for classified advertisements were not considered, for it is generally admitted that there is a considerable difference in the attitude which persons take towards the two kinds, classified and display, the former appealing primarily to those who are already interested in the proposition. It is rather amusing that if one takes Shryer's results as they stand, they prove the existence of cumulative value, the very thing which they were supposed by him to disprove.

In working out his results, the writer has added together the results of consecutive insertions of the advertisement, thus showing the total number of inquiries pulled by the first insertion alone, by the first two, by the first three, etc. The figures, reduced to ratios, follow:

	Number of Insertions						
	1	2	3	4	5	6	7
Inquiries.....	1.00	2.01	3.03	4.33	5.23	6.58	7.84

These figures are to a certain extent untrustworthy and misleading, for out of the 30 or more tables from which they were derived, fully half contained too few figures to be entirely dependable. The 16 tables which contained 100 inquiries or more for the first insertion were considered apart, for it was thought that the greater the number of inquiries, the less relative effect some slight accidental variation would have. The table made up of these ratios follows:

	Number of Insertions						
	1	2	3	4	5	6	7
Inquiries.....	1.00	2.08	2.78	3.46	4.20	5.64	6.28

[9] Shryer, W. A. "Analytical Advertising," pages 82–114.

These figures show a lack of cumulative value, except in the case of the second insertion, and this lack is enhanced when we consider another argument of Shryer's.[10] He states that an advertisement which is inserted but once will still pull inquiries during the second, third, and fourth months and backs up his statement by a list of 10 examples. The relative efficiency of an advertisement which has appeared but once is shown for the first, second, third, and fourth months in the following table of ratios:

1	2	3	4
1.00	1.68	1.83	1.94

Taking Shryer's figures as they stand, uncorrected for the piling up effects of one insertion, we find that they are somewhat higher than those obtained by the experimental method with duplicates, as will be indicated by the following table:

	1	2	4
Experimental	1.00	1.37	2.10
Shryer	1.00	2.08	3.46

If we try to correct his figures roughly by obtaining the ratio of efficiency of the repeated advertisements to the piling up effects of one insertion alone, we obtain the following ratios:

1	2	4
1.00	1.24	2.21

His figures, with correction, show a very close resemblance to those obtained by the experimental method.

On the average, it appears that increased space is more effective than duplication of advertisements, with both the experimental and the practical results, as will appear from the following table:

Experiment.

	Units of Stimulation		
	1	2	4
Size	1.00	1.64	2.43
Duplication	1.00	1.37	2.10
Practical Test.			
Size	1.00	1.53	2.25
Duplication	1.00	1.24	2.21

The table is also interesting in that it points out the very close and striking resemblance between the laboratory tests on memory values and the business tests on practical efficiency.

[10] Shryer, W. A. "Analytical Advertising," pages 114–115.

When we consider the effect of varied advertisements rather than duplicates, we find that repetition is a greater factor than increase in size, as the following table will show:

	Once	Twice	4 Times
Quarter page	1.00	2.88	5.31
Half page	1.00	2.70	3.66
Full page	1.00	2.30	3.17
Average	1.00	2.63	4.05

These ratios are considerably above those obtained for increase in size of the advertisements, which were 1.00: 1.64: 2.43.

We are also justified in stating that duplication has a much lower memory value than variation. The following table will make this clear:

	Duplication	Variation
1 appearance	1.00	1.00
2 appearances	1.49	2.63
4 appearances	2.57	4.05

This table shows very strikingly that variation possesses a very much greater memory value than duplication.

There are at least two reasons why this should be the case. In the first place, the degree of attention is undoubtedly an important factor. When we see a duplicated advertisement the second time it is relatively uninteresting, consequently the second impression is not as great as the first. But with the variation, there is always the novelty of a new advertisement so that attention may be at its maximum.

In the second place, where duplicates are used but one type of appeal can be successfully employed. This may be for the reader an uninteresting one, consequently he may neglect the advertisement entirely. Where variations are used, however, it is possible to make as many different types of appeal as there are variations in the series. In addition to producing greater attention, variation is more likely to connect the advertisement with the individual's series of interests, thus tending to give it a greater memory value.

Since Shryer's advertisements have been running consistently in a fairly large number of magazines, it is a very probable supposition that those who answered his advertisements had been influenced both by duplications and variations of the advertisements. If such were the case, and we assume it to be, it would be interesting to compare his ratios with our ratios representing an average of the two tendencies. Such a comparison follows:

	Once	Twice	4 Times
Duplication	1.00	1.49	2.60
Variation	1.00	2.63	4.05
Average	1.00	2.06	3.33
Shryer's	1.00	2.08	3.46

These figures, which are strikingly similar, show a high degree of correlation between the experimental test of memory and the practical test of efficiency.

SUMMARY.

1. Increasing size gives a higher memory value than increasing the number of repetitions of an advertisement when exact duplicates are used.

2. Variation is about twice as effective as duplication.

3. There is a very close correlation between the memory value of the different forms of presentation of the material and the practical efficiency of the same forms of presentation in pulling inquiries.

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THE FIELD OF LOGIC

THE volume of the "Encyclopedia of the Philosophical Sciences" recently published gives an accurate rehearsal of the present condition of the science of logic. If there is any direction in the development of logic it seems to be away from the conception of that science as a branch of psychology. Among the papers we find rather less of that peculiar psychology written in terms inherited from the scholastic logic that characterized the literature under the head of logic some years ago. The conception of logic as the science of the empirical process of thought to be dealt with through the categories of Aristotle or their scholastic modifications for a time threatened to leave no room for the traditional formal logic and its modern successor. From this departure logic has been rescued by the mathematicians. As a result of the work of Peano and his followers psychologism has gone out of fashion.

Psychologism has not disappeared from logical writing, however, and there can be found in the present volume very disconcerting traces of its survival which threaten a return. The writers of the volume have approached their task from very different points of view, but there is one respect in which they are agreed, with vary-

ing emphasis. Logic is still a science of thought as distinct from expression. Windleband makes it clear that this does not mean that in psychology is to be found the ground of logic. "Logic," he says, "is concerned not with the origin, but with the validity or truth of ideas." It is true that this validity is distinguished by means of a feeling and that it is the task of psychology to establish "the marks which from a psychological point of view distinguished the purely theoretical grounds on which perception and knowledge are accepted from those of opinion and belief," yet, for this thinking which is directed at truth there are "constraining norms" by which we proceed from one assertion to another. These norms are not a matter for the psychologist's investigation. Logic, then, for Windleband, applies to thinking which is done under this constraint. That there exists such thought distinct from any verbal expression he takes to be proved by instances of aphasia, inability to express what is in the mind, the fact that mechanical speech is sometimes accompanied by distinct thought, and, best of all, the fact that we may have in two different languages the same thought expressed.

Windleband narrowly escapes, if he does escape, the clutches of the psychologists, who may claim such a thing as a "constraint" to think thus and so for their own, or may attach the "feeling" by which a true judgment is distinguished from a false. The other writers who are given place in the volume are in less danger. Professor Royce makes logic a part of a more general science of order which turns out on examination to be Russell's mathematics. These forms of order in general "are in fact the forms of all rational activity," which is again something different from verbal expression.

For Croce also logic is the science of thought, the thinking process as distinguished from expression. It is to include among other things a theory of error, or the "pathology of thought." From Couturat we had been led to expect a different attitude. Some years ago in a discussion with Poincaré he offered the suggestion that logic was not the science of thought, but the body of *rules of demonstration*. We find him in this volume, nevertheless, asserting that logic is the "normative science of the formal laws of correct thinking." It deals with the understanding, not with expression, though language offers the best example of the operation of the understanding. We find practical agreement among the writers of the volume in these two respects: (1) Thought or meaning is something competely distinct from and independent of expression. As Windleband puts it: ". . . it must, above all, be clearly laid down that the linguistic relational forms are nothing less than imitations of the forms of the movement and association of ideas," signs for these. "The fundamental logical act, the judgment, finds its verbal

form in the proposition." (2) Logic is concerned with this inner activity that underlies expression and not with the expression: this bears the character of something accidental to the thought.

This conception of the field of logic does not prevail with the unanimity that the volume suggests. It contains two sources of confusion which have been pressed many times in recent discussion. One of these is that when we choose for the field of logic thought and not expression we are dealing with a field which is better left to the psychologists. Thought seems to be a process in time which occurs whether it is logical or not. Logic does not pretend to offer causal laws for thought and is so left to furnish normal laws—but there are grave difficulties in the way of authorizing these normal laws. Why any one should think "logically" when thinking illogically will be successful can not be made clear. To avoid the discussion of empirical thinking logicians are forced to invent a purely fictitious "rational activity" and to apply to this the laws of pure thought. The second difficulty is that if we consider thought as something over and beyond expression, something that never comes to complete expression, we have for the subject-matter of logic not merely the not-expressed, but even the non-expressible. Our data are in a form which can not be discussed, compared, described or shared.

These difficulties are to be overcome only by a radical change of attitude. Of all the writers Couturat is least involved in the course of his paper in problems of "the act of judgment," "pure rational activity," and like never-expressed, unknowable matters, and the reason is that his definition of the province of logic is only a half-hearted concession to a tradition and his real attitude is more like that of Padoa, whose symbolic logic is frankly an ideography with rules for use. In reality Couturat represents this more modern position which lacks the explicit recognition it deserves in the volume of the Encyclopedia. When it is formulated it will include at least the following two provisions: (1) The field of logic must be redefined as the structure of expression rather than thought. (2) The meaning of propositions as distinct from the propositions themselves is not (for logic) an entity independent of any particular expression, but is a function of the expression, usually indicating equivalence of two expressions or a possibility of substitution. The question, "What does this mean?" is not unanswerable, as it would be if meaning were distinct from expression, but is answerable by a second expression which can be substituted for the first. Windleband would have it that "the thought form as such never comes to expression in speech." His consequent difficulties are beautifully illustrated in his article. "If,"

he says, ". . . I say of gold that it possesses the property of yellowness (which is the logical meaning of the proposition that affirms of the subject 'gold' the predicate 'yellow'), so I may equally well say of yellow it is a property of gold; but verbally the conversion of 'gold is yellow' to 'yellow is gold' would appear as incorrect, or at least not as the exchange of subject and predicate, but only as an uncommon and inverse form of proposition." He could hardly have avoided giving verbal expression to the real logical meaning (which was never to come to expression in speech) and his choice seems to common sense to be between two differing verbal expressions rather than between a real meaning not expressed and a verbal expression. Real meaning must be for logic *equivalence* of forms. In fact this is what is actually observed when logicians pretend to be dealing with "true meaning." What we are offered is an equivalent statement. When Bosanquet refers to the "true meaning" of a statement, he offers us *what he would have said* or *what might better have been said.*

Logic in this sense will not represent the actual play of consciousness by which scientists and common men make additions to knowledge nor the path which they should follow in order to arrive at truths, but the structure of expression of truths once found. Logical laws will represent agreement as to form that must precede communication, agreement which conditions expression. The "logical act," the judgment, the actual or desirable thought process, remain a mystery to the psychologist and are barren ground for logical research. On the other hand, the rules which govern the expression of thought can be determined from expression. Logic as a descriptive and a normative science becomes possible. Geometries do not contain histories of the thinking and the motives of the geometers who discovered their theorems, but a statement of the theorems connected with the body of the science in certain set ways. We need not think in syllogisms or any other of the forms of logic. This was Mr. Schiller's contention in his "Formal Logic" and is perfectly justified. His error lies in not recognizing that communication, the sharing and storing of knowledge would be impossible except in expression, usually verbal, that is through and through formal, that possesses a definite structure. In an argument we do not reproduce our train of imagery in another's mind, nor need we try. It is sufficient to speak by the card. Discovery and proof are different matters. Logic deals with the latter, the former we may leave to psychology with the expectation of little help. Formulation of the art of thinking is not far advanced. Windleband's greatest insight is in his admission that "perceiving and knowing as empirical functions are entirely social in their na-

ture." Together with his later statement that the normative constraint of logic is felt *"as soon as an assertion is made"* the way was prepared for better things than the "purely theoretical principles," the "pure logic," the *"a priori"* laws of valid thinking with which his paper is concerned.

Such discussion of "real meanings" and "pure thought" which is "never brought to complete expression" comes from two sources. One of them is the fact of inner speech which is but rehearsed expression. The other is the desire to attribute the equivalence of varying expressions, the interchangeability of differing verbal forms, to an underlying unity of which both are "imitations" or "signs." There must be one entity which both can "copy." This motive would require a modern Hume for its complete subjugation. The "something, I know not what" that underlies expression is a thing in itself of which the logician may well beware. The discussible matter of logic seems to be confined to expression, and logic's task should be rather to examine the forms of expression for their structure, to invent new and simpler forms, to codify the relations between forms, even if this means that we surrender that mystical satisfaction that comes from the discussion of the ineffable—real meanings that are different from expressed ones.

If this view of logic is the correct one, logic ceases to be the *a priori* condition of thought and becomes the *a priori* condition of expression, but its a-priority becomes relative to its use, to the group within which it is established. Logic takes on a human character very different from the awe-inspiring divine science of order which Royce presents. We may find logics rather than logic. We can say no more than that in a certain group a certain structure of expression prevails, a certain agreement as to the use of language, and this group need not be defined by differing forms of human culture, it may be limited by the specialization of a science. The logic of mathematics consists of agreements in form of statement that would be entirely unable to deal with the uses of ordinary life. Not all human expression will submit to the rigid forms of mathematical logic whose limited number and comparatively simple and abstract character makes them so easily symbolized. Between old friends a shrug may convey an intricate and definite meaning. The logic of mathematics does not mention shrugs.

It requires a very delicate metaphysical discrimination to determine the sense in which forms of reasoning are valid for men who do not use them. A man on a desert island with a companion dog needs little of the complicated structure of the logistic. A few simple uniformities which he must observe in calling to his dog suffice. What else he has will be memories of former association

with men, or will apply to anticipated meeting with his fellows. He need make no assertions. His thinking need not have the structure of logic. He needs no syllogisms with which to avoid a storm or take nourishment. A feeling of hunger, the sight of food, motor habits, all the stock of terms granted to the psychologist, apply to his situation. The logician must concern himself elsewhere.

Not only can logic include more than the logic of Aristotle, as the modern logistic does, there might have been non-Aristotelian logics with principles different from the familiar laws of contradiction and excluded middle. What final authority would judge between the ultimate "correctness" of Aristotle's logic which offers two contradictories defined by the axioms: $x+x'=1$, $x \dot{-} x'=0$. $(x')'=x$ and a logic which would provide three contradictories as would the following axioms: $x+x'+x''=1$, $x \dot{-} x' \dot{-} x''=0$. $(x)'=x'$, $(x')'=x''$, $(x'')'=x$? It is true that we can only discuss other logics in terms of one logic, but this is no more a proof that they are therefore unreal than is the fact that an Englishman in discussing German must use Engish, a proof that English is the *a priori* condition of communication, valid for all times and all places.

The principles of such logics will not imply the immutability of the real, but only the comparative immutability of the terms in which it is discussed, during the discussion.

Not only is there a divergence between the complete logic that will provide for all intercourse and the limited field to which the mathematician restricts himself, it is also true that this body of abstract rules which is susceptible of symbolic statement may be developed into a calculus and carried to a degree of intricacy that passes all need for intercourse even between mathematicians. Formulas may be constructed that can never serve, or never find instances of use. At this point logistic ceases to be logic and becomes mere calculus, a branch of mathematics of interest only as a game. To a certain extent the logistic coincides with the logic of ordinary intercourse; for some distance beyond it offers a structure for statement and proof useful to the mathematician only; beyond that it is a mathematician's amusement. The mathematical treatment of logic becomes a mistreatment.

The logic of science has pretended to determine how the expansion of scientific knowledge takes place. What it really does is to exhibit the structure to which new matter must conform *to be understood* by other workers, the schemata of expression and communication, not the actual thought processes of investigators. We can not make chemists by imparting to laymen the logic of science. We have no successful formulas for discovery and invention. Col-

lege courses in logic which pretend to impart the ability to think profitably in various fields of endeavor are a snare and a delusion. Jevon's four stages of induction, like those of Enriques, and a host of others, hopelessly confuse two different matters, the thought process by which a scientist arrives at a discovery, which goes by very devious ways, and the schema by which he connects his discovery with the body of his science, the schema of proof or demonstration. This is rational. The thought process may or may not be rational. "Rational" and "logical" are best taken to their first sense in which they apply to verbal expression.

We find ourselves in entire agreement with Russell in his belief that truth is quite accidental to propositions as far as logic is concerned. Logic is not concerned with the truth or validity of ideas as Windleband would have us believe; it is rather life itself that is concerned with their truth and validity, logic with the structure of discourse and expression.

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PURPOSE AND CAUSALITY

IN Part II. of Professor Warren's "Study of Purpose,"[1] we find the statement that before Darwin's time "the only alternatives for explaining progress were 'design' and 'chance,'" but that Darwin himself "pointed out an intermediate alternative in 'natural selection.'" Later on we read, "if, through some chance variation, a peripheral organ appears in some creature, which is capable of being stimulated by the juices emanating from food, the creature possessing that variation is . . . more likely to survive and have offspring than the rest of the species."

Is there not a contradiction here? If the doctrine of natural selection includes the principle of chance variation, can natural selection logically be regarded as "an intermediate alternative" between chance and design? If variations come by chance, how is this a third alternative? Does it any more than very partially relieve the "absurdity" to which Dr. Warren refers of attributing *all* progress to "mere chance"? Natural selection may explain in a manner satisfactory to science why certain variations persist and others disappear, but it leaves the problem of the *origin* of these variations quite as much in the air as it was before.

But there is a way out of this difficulty if we define the concept of chance more carefully. The term "chance variations" should not be

[1] This JOURNAL, Vol. XIII., page 40.

construed as meaning that those variations have *no* cause, but merely that their cause is too complex to be determinable. Such a definition of chance would seem to be absolutely essential to the mechanist position.

I write these suggestions, not in defense of scientific vitalism, nor yet of philosophical mechanism, but of the view that mechanism is the essential standpoint of science taken in connection with the metaphysical position that the principle of causality is itself an expression of a deeper principle of teleology. The admission of an "entelechy" principle into the essentially mechanist world of science would indeed "play havoc" with the universal causal principle formulated in the interests of scientific explanation; but this does not mean that science says all there is to say in the matter of purpose. Dr. Warren's analysis of purpose on its scientific side is valuable and impressive, but the scientific aspect of purpose is after all but *one* aspect, and that an abstract and artificial one.

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REVIEWS AND ABSTRACTS OF LITERATURE

Proceedings of the Aristotelian Society. New Series, Vol. XIV, 1913–1914. London: Williams and Norgate. 1914. Pp. 438.

The first paper in this volume of the "Proceedings" is by the President, Mr. G. Dawes Hicks, and is entitled, "Appearance and Real Existence." In it the writer leads up to his own doctrine through a discussion of the topic as treated in the systems of Plato, Kant, and Hegel. These are all criticized on the ground that empirical things are assigned to the realm of phenomena or appearances. According to the view advanced by Mr. Hicks, objects are not appearances in the usual sense, but appearances are rather the ways in which objects are apprehended. The common notion that objects of immediate experience are sense-data, which by their presence enable us to lay hold of objects more remote, is contrary to fact. What we perceive is the physical object, though this perceiving is indeed mediated or made possible by the sense-data or "presentations." These data are not immediately apprehended; "their influence is largely indirect and in the region of obscure consciousness" (p. 36). Objects are immediately apprehended and apprehended as they are, though our apprehension is indeed incomplete. "It is precisely in this contrast between the imperfect, the partial, and the perfect, the complete, that the significance of the term 'appearance' is to be discerned" (p. 39). It is immediately added, however, that "incompleteness may often amount to positive error." Apparently the significance of this transformation from pure negation or incompleteness to "positive error" escapes the writer, for his explanation of illusions, such as the bent stick, consists simply

in showing that "the distinction between appearance and reality is necessitated by objective conditions" (p. 41). Instead of showing how a bent stick results from a partial or incomplete perception of a straight stick, the explanation devotes itself to considerations of perspective, diffraction, etc., which are entirely irrelevant to the question at issue. Whatever the reason for the appearance of the stick, the difference between the perceived stick and the "real" stick is hardly a difference of mere omission. Much of the discussion is evidence that the writer is unable to shake off the bondage of an outworn psychology. In discussing memory and imagination, for example, he protests with some feeling against the notion that the mind is a storehouse for the materials required for the construction of objects, yet he hospitably shelters the presentations which "do duty merely as signs" of objects. That the two cases are essentially parallel does not seem to occur to him, and, in his own language, "the assumption would be less readily made if the question of what it implies were not so lightly passed over" (p. 45). It is held both that "we do not start with the apprehension of innumerable patches of color, etc." (p 37), and also that "it is psychologically demonstrable that what appears to be the immediate apprehension of distance is in truth a complex estimate based upon a number of data and is essentially of the character of a judgment" (p. 36). Sensation, in other words, is an abstraction, an achievement, which comes relatively late, but it is also a starting-point, a constituent, or datum. Fundamentally the trouble seems to lie in the assumption of "what certainly seems to be an empirically established fact, that a finite mind is a real entity in the midst of a vast environment of other minds and of physical objects" (p. 39).

The second paper, entited, "On Feeling," by Mr. J. A. Smith, opens with a critical discussion of various theories regarding the nature of feeling, and then proceeds, dialectically, to the conclusion that "*all* experience, so far forth as it is experience, or in proportion to its perfection as experience, is Feeling and *therefore* Pleasant Feeling or *Pleasure*. And, conversely, that so far as any experience is short of perfect experience, it is by comparison non-feeling and *therefore* unpleasant Feeling or Pain. This involves the paradox that Pleasure *is* Feeling, and Pain not Feeling, but its opposite, and therefore Pain has, as compared with Pleasure, only a secondary or borrowed existence. It exists only in so far as non-experience or inexperience can be said to exist. Pleasure is positive, Pain negative, a contrast or shadow effect. Or, as I should prefer to put it, Pleasure *is* and *is* something, while Pain is not or is nothing" (p. 72). This conclusion is based on a wearisome process of logic-chopping, with the inevitable assumptions and ambiguities that have made philosophy so often a battle of words.

The paper on "William of Ockham," by Mr. C. Delisle Burns, aims to show, in the first place, that Ockham "regarded the individual Socrates as objective fact, and, seeing that it did not *consist* of qualities, supposed the likeness between Socrates and Plato, etc., to be '*intentiones mentis*,' 'abstract ideas'; but he avoided the statement that these 'ideas' or classifications are arbitrary. And again this, though inexact, prac-

tically amounts to the admission of an irreducible reality, a universal" (p. 90). The conclusion arrived at is that "we must accept, as the basis for understanding the particular, *numerical difference;* and as a basis for understanding the universal, existence which is not reality, or if the terms are preferable, at least *two kinds* of reality" (p. 99). This conclusion, however, is simply a demand that must be met by our explanations. How this is to be accomplished, or what new modes of approach are possible, the writer does not undertake to say.

"Philosophy as the Coordination of Science," by Mr. H. S. Shelton, advances the thesis, "that the coordination of the facts and theories of science is a branch of philosophy and that this coordination should not be a shadow, but a solid reality" (p. 100). Intensive work in different fields has become so common that some means of coordination has become indispensable, and this is the task of what the writer calls "objective philosophy." Various illustrations are given to show the practical value of such work. "In some small way to correct the modern tendency towards over-specialisation, to preserve that wider view which tends to be lost in the increasing mass of detailed work, to distinguish between the facts of the scientist and his theories and opinions, to endeavor to ascertain which of the latter are sufficiently well established to be transferred to other spheres of thought, and which are allowable only as working hypotheses to be confined to the circle of ideas whence they arise, to separate the main trend of human thought, research and endeavor from those personal and sectional excrescences with which they are bound up, these are a few of the aims of objective philosophy" (p. 123).

"Intuitionalism," by Mr. N. O. Lossky (translated from the Russian), analyzes experience as including "(1) the self, (2) a content (a 'something'), (3) a relation of having between the self and the content" (p. 127). Subject and object are coordinate, the relation being of a non-causal sort. The usual argument for subjectivism is met by the startling suggestion that some of our experiences "might be states of some lower centers of the nervous system," in which case they are not mental states, but "would still belong to the sphere of the not-self" (p. 132). It is true, indeed, that every act of knowledge must contain a certain coloring of subjectivity, but this can be separated out, for truth bears certain marks. If, for example, we add imaginative elements to a situation presented by memory, the difference is directly and easily perceived. In judgment the content is objective and springs from the nature of the objects known if the predicate (or the conclusion) "follows from the objective content of the subject (or the premises) without any intervention on the part of the knowing mind. All that is left for the individual is passively to follow what the content of the subject compels him to admit" (p. 150).

Under the title, "Some New Encyclopedists on Logic," Mr. J. Brough offers a review of the forthcoming Encyclopedia of Philosophy. This is followed by a "Discussion on the Value of Logic," which consists of a defense by Mr. A. Wolf against the criticisms advanced in Mr. F. C. S. Schiller's "Formal Logic," and a reply by the latter. In his handling

of this topic Mr. Wolf unfortunately does not concern himself seriously with the specific charges brought by Mr. Schiller, his discussion showing considerably more animus than relevancy. This is the more regrettable because a detailed consideration of these charges would be especially opportune. Such a consideration would doubtless be welcomed by many teachers of logic who are apparently growing more and more distrustful of the traditional treatment, but who are not ready to take the radical position defended by Mr. Schiller.

"The Psychology of Dissociated Personality," by Mr. W. Leslie MacKenzie, confines itself to "terms and doctrines where 'criticism of categories' ought to be of service" (p. 243). The discussion of personality, the formation of double personality, the unity of consciousness, the subconscious, and the mechanism of dissociation is intended to eliminate as far as possible all empty and unintelligible concepts, in order to limit the study of dissociated personality to concepts and facts that can be experimentally verified and analytically described.

The paper by Miss F. R. Shields is a defense of "The Notion of a Common Good." The judgment that the Good is common, so it is argued, is "an analytic proposition. If there be such a thing as Good at all, it must be recognizable as such to all rational individuals; just as the notion of Truth means what is true for all, whatever the content may be, so the notion of Good means *common* good" (p. 274). The contrary belief arises partly from the mistaken notion that the good of different individuals is conflicting, and partly in confusing the proposition that the good is common with the proposition that whatever is, is right. These views are erroneous, as is also the opinion that the common good is the goal and not in any sense the presupposition of ethical endeavor. Whenever interests conflict, the good is equally good for all concerned,—why or how is not stated, save that this is involved in the "logical" or "formal" characteristic of the good. How the good is related to the lives and activities of men is not made clear, and it is difficult to suppress the suspicion that the discussion is concerned with the fruitless manipulation of an abstraction and not with a dynamic and authoritative ideal.

Mr. David Morrison's paper on "The Treatment of History by Philosophers" opens up with the apparent conflict between determination by personal agency and determination by universal law. Freedom and the reality of time are questions that must be faced by the philosophy of history. To deny the reality of time is to discount the individual and his experiences, and in the end it wrecks all human purposes. Given the reality of time, however, it is still requisite to provide for the conservation of values, and this conservation seems to be bound up with the persistence of personality, both finite and infinite. The problems with which history presents philosophy all lead back ultimately to the contest "between spontaneity or individual activity and the scientific concept of inert matter as a constant quantity" (p. 316). The writer, however, does not seem to feel that an investigation into the nature of values and their

relation to human conduct is likewise necessary to legitimate his conclusions as to what is necessary to give dignity and worth to history.

The thesis of Mr. S. Alexander's paper on "Freedom" is "that Freedom is enjoyed determination; and that it is found wherever the distinction of enjoyment and contemplation is found; so that human freedom is but a particular case of something much more general" (p. 322). We find freedom, for example, even in instinctive processes, where one mental state leads on to another; or in what we call the free play of the imagination, one fancy suggesting another," without the presence of intent or volition. Acts of volition are simply one kind of freedom. Seen from without, such processes do indeed have the character of determinism. But "freedom in general is the experience which each thing has of the working of its own nature; and a distinction parallel to ours of freedom and unfreedom exists for the plant and for the stone or the atom. The plant undergoes the wind which bends it, or the air which sets its respiration at work. But it enjoys its own free act of respiration. The stone is passive to the freezing water that splits it, but free in its resilience to deformation" (p. 352). This view of freedom, as is explained in some detail, does not involve the abolition of temporal distinction, nor does it deny causality to mind or make mental facts wholly predictable. Causation presents essentially the same features on the mental and on the physical side; and predictability has the same kind of limitation in the physical as in the psychical realm. In the discussion of causation, which is confessedly "brief and vague," it appears that in acts of willing the expectation or anticipation of future consequences leads on to their fruition, *i. e.*, such expectations are operative in the determination of events (p. 339, note). For other modes of conscious behavior, however, no corresponding differentia is indicated, with the result that all the familiar difficulties and obscurities regarding psychical causation remain pretty much as they were. Mr. Alexander's suggestive paper is apparently too much concerned to show that freedom, being "nothing but determination or causality in enjoyment" is "in no wise different from the familiar causality of the physical world" (p. 329). The reviewer ventures to suggest that unless some new category is employed by which to differentiate conscious or intelligent behavior from other activities, the problem of freedom offers little hope of solution. The suggestion, for example, that is made regarding the *modus operandi* of volitional acts may perhaps be fruitfully applied to all forms of conscious behavior. A more thoroughgoing analysis of conscious behavior seems to be demanded for a consistent and illuminating doctrine of freedom.

The Symposium on "The Status of Sense-Data," by Messrs. G. E. Moore and G. F. Stout, is a careful and excellent discussion. The points af agreement between the two writers are stated by Mr. Stout as follows: (1) "The sensibles which we directly apprehend in perceiving a physical object are never simply identical with the physical object itself or with any physical part of it or with any quality belonging to it"; (2) "What we know through sense-perception of a physical object is based in the last resort on the direct apprehension of sensibles and the perception of

relations between directly apprehended sensibles (p. 381). Both hold that we have direct knowledge of "sensibles" or sense-data as connected with existence beyond themselves. The source of the sensibles is known as like in nature to the nature of the sensible. According to Mr. Moore, however, this kinship of nature holds only for the "primary qualities," whereas Mr. Stout thinks that it is true of all sensibles without restriction. The question, raised by Mr. Moore, how we can know the source beyond the sensibles, can be answered, according to Mr. Stout, by reference to the parallel case of recollection, in which images know or refer to the earlier experiences from which they were derived. Here also we have an immediate knowledge of a source that lies beyond the present experience. What we have in such cases is the "unanalyzed complex including image and primary experience and their connection, without separate discrimination of these factors" (p. 387). To make the discrimination is to correct the errors of illusions and hallucinations. As to objects existing unperceived, it is sufficient to assume that the source of our sensibles persists, together with the possibility of such sensibles, this possibility being "of such a nature that its realization does not affect the existence or nature of the source" (p. 403). This relation to sense-experience must be included or the physical object is no physical object at all.

In this presentation the relation of the mind to its object seems, unfortunately, to be passed over all too lightly. The theory must show what relation is presupposed between the mind and its object or else lay itself open to the suspicion that this relation of "immediate knowledge" can not be made intelligible. The difficulties that have so long infested the concept of reference can hardly be eliminated by citing facts that are indubitably cases of legitimate reference. And, secondly, the attempt to solve the problem of perception and of relativity by including within the object the possibility of perception or reference to sense-organs does not, after all, advance us a great deal. "Possibility" is only a word. If we conceive of objects that are in nowise affected by the fact that they become perceived, the nature of perception and of relativity would seem to be past finding out.

The concluding paper of the volume, by Mr. H. Wildon Carr, is entitled, "The Principle of Relativity." The purpose of this paper is to discuss the philosophic import of those recent speculations in the physical sciences known as the doctrine of relativity. These speculations, according to the writer, raise three philosophic problems, viz., the problem of continuity, the problem of the nature of real duration, and the problem of original movement. These problems are discussed and solved along orthodox Bergsonian lines. Matter being the externalization of our life in action, is inherently discrete; hence continuity must be sought "in what is essentially concrete and qualitative, that is, life." Similarly, time becomes concrete and continuous when regarded as pure duration and not as merely geometrical time. And, lastly, "life is a movement, or change, or duration which is not a quantity; it is not an aggregate; it is not divisible into parts external to one another; it is a pure quality. . . .

The physical world is the reflection outwards of what in itself, in its absolute nature, is psychical duration" (424).

The volume as a whole shows the range of subjects and standpoints that have marked earlier volumes of the "Proceedings." Generally speaking, it presents no striking novelties in the way of ideas, but it reflects the different systems and doctrines that during the past decade have been struggling for supremacy in the philosophic world.

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The Analysis of Sensations. ERNST MACH. Chicago and London: Open Court Publishing Company. 1914. Pp. xvi + 380.

Mach's small work on the "Analysis of Sensations" is too well known to call for a detailed review. A new English edition of it has recently come from the Open Court Publishing Company, revised and supplemented from the fifth German edition. Since the first appearance of the *Contributions* in 1886 and the first English translation in 1897, great changes have come about in psychological epistemology, which are reflected in the present volume. The editor of the present revised edition, Mr. Sydney Waterlow, informs us that "six chapters are entirely new, namely, Chapter III., on 'My Relation to Richard Avenarius and other Thinkers'; Chapter V., on 'Physics and Biology: Causality and Teleology'; Chapter VIII., on 'The Will'; Chapter IX., on 'Biological-teleological Considerations as to Space'; Chapter XI., on 'Sensation, Memory, and Association'; and Chapter XV., on 'How My Views Have Been Received.'" Further, the eight chapters of the original edition have all been greatly expanded. Chapter II. now contains most of the matter which appeared as an appendix to the translation of 1897. Chapter VII. contains six sections by Dr. Josef Pollak on recent research as to the functions of the labyrinth of the ear.

By no means the least interesting and encouraging part of the book is the series of prefaces accompanying the various German editions, from the first to the fifth, in which the reader may perceive how the work has steadily made its way and how epistemological opposition has steadily weakened. "Whether I shall ever succeed in making my fundamental ideas plausible to philosophers, I must leave time to decide," says Mach in the chapter, "How My Views Have Been Received." Time has probably been more friendly to Professor Mach's opinions than the author had at one time much reason to expect.

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JOURNALS AND NEW BOOKS

MIND. October, 1915. *Nietzsche on the Problem of Reality* (pp. 441–463): W. M. SALTER. – Summarizes Nietzsche's teaching of the problem of reality as follows: (1) The world (the world as we commonly understand it) is not real—the world of "science" as little as that of common sense; (2) we make the world real, *i. e.*, posit it as such, have to for life, and none the less delude ourselves; (3) is there any reality? (4) reality conceived as power and will to power. *What do We Mean by the Question: Is our Space Euclidean?* (pp. 464–480): C. D. BROAD. – "Subject to the conditions that space is to be changeless and homogeneous and not to act on matter, and that matter is to move about in space, can we construct a system of physics which assumes Euclidean geometry for space and enables us to deal consistently and adequately with all the data that scientists agree to be most worthy to be taken into account?" *Lotze's Relation to Idealism. Section 3* (pp. 481–497): E. E. THOMAS. – According to Lotze, "what renders the world a whole is an order of validity." In addition to the "unity of order" there is a "unity of existence." "To make the unity of order prior to that of existence, is to return to Idealism; to make the unity of existence prior to that of order, is to move away from Idealism." *The Relation of Idea to Object-matter as a Universal Mode of Cognition* (pp. 498–515): CHARLES E. HOOPER. – "The relation of thought to object-matter from which it consciously detaches itself is, in my view, a universal and self-evident mode of human cognition." "The logical form of thinking conditions the matter of thinking, but does not refer to anything outside itself. It is the *matter of thinking* which always refers to a quite different *matter thought about.*" *Discussions: Realism, Pragmatism, and William James:* F. C. S. SCHILLER. *The Necessity for a Universal in Reasoning:* H. S. SHELTON. *Mr. Strachey's Defense of Mr. Russell's Theory:* J. E. TURNER. *The A Fortiori Argument:* W. A. PICKARD-CAMBRIDGE. *The Indetermination of Meanings:* F. C. S. SCHILLER. *Critical Notes. New Books. Philosophical Periodicals. Notes.*

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NOTES AND NEWS

A Work of Reconstruction

The Belgian Scholarship Committee was founded about a year ago in Washington by the well-known author, scientist, and traveller, Dr. Nevil Monroe Hopkins. At first it confined its activities to the District of Columbia, and its aim was simply to collect money for destitute scholars, but its scope has become broader and broader. The committee now includes among its members the presidents or chancellors of the following universities: Johns Hopkins, Princeton, Michigan, Missouri, Leland Stanford, Pennsylvania, George Washington, State of New York, Nebraska—and many other leading men of this country. The aims of the Belgian Scholarship Committee are the following:

1. To give to the Belgian scholars, writers, and artists a chance to resume their work of art or science. To accomplish this aim the Belgian Scholarship Committee acts as a clearing bureau between the American universities, and other educational institutions, and the Belgian victims of the war.

2. To raise a fund for the reconstruction of a new and better Belgium, especially in the educational field.

The first aim is only of a temporary nature; the second one becomes every day more important. Our ambition is to be ready, as soon as the war is over, to help in putting Belgium on her feet again for a new and greater career. We are appealing for books to the American libraries; we hope that they will be willing to give some of their duplicate copies and also that we shall receive free sets of their publications from the educational institutions and learned societies. We can not afford to store and keep the books until the end of the war. Therefore, we do not ask for books, but rather for promises of books. We suggest that the whole business be managed in the following way: Each library would simply send us a list of the books that it is willing to give to Belgium. This list would contain all bibliographical information that is necessary to identify the books without mistake (author, title, number of volumes, date and place of publication, editor). We should acknowledge receipt of these lists, and enter them on a duplicate list on cards. After the war, as soon as circumstances permit, the Belgian Scholarship Committee would write a letter to all the libraries, recalling their promise, and asking them to send all the books to some central storehouse in New York City, from where they could easily be shipped to Belgium. We shall concentrate our efforts upon the making up of a collection of American books—books published in America, or relating to American affairs. We should thus be able to offer to Belgium, soon after the war, an *American* library. No gift would be more appreciated and would do more to bring about a better understanding of American conditions and ideals, and greater international friendship. Of course books given by publishers and authors will also be welcome. We would suggest leaving in each book its former *ex libris*, a short note being added to show how and when the transfer to Belgium was

made. Dedications by the authors would be also much appreciated. The value of the collection would be in this way considerably increased. It would really constitute a lasting souvenir of America's generosity and sympathy.

We are also appealing for money. Money is needed to help Belgian scholars and artists; money is needed to carry on our activities; lastly, we must be able to remit a huge reconstruction fund (to be used for educational purposes only) to the Belgian people when the war is over. We can not expect to be helped by the general public, as is the case with the general relief fund, but we earnestly appeal to the élite of the American people—to those who are especially interested in the development and diffusion of knowledge and art. The best way to show one's sympathy is to become a Fellow or Member of the Belgian Scholarship Fund for the duration of the war and two years thereafter. The Associate members agree to subscribe at least Ten Dollars a year; the Sustaining members at least One Hundred, and the Fellows One Thousand. Please draw checks to the order of John Joy Edson, Treasurer, and send them to the Belgian Scholarship Committee, 309 Wilkins Building, Washington, D. C. When the war is over the Belgian Scholarship Committee will publish a book containing a complete record of its activities and a list of the Fellows and Members whose devotion made it possible.

We wish to lay stress upon the fact that ours is not simply a relief work; it is essentially a work of reconstruction, making for international friendship and peace.

GEORGE SARTON, D.Sc.,
Secretary of the Committee.

UNIVERSITY OF GHENT, BELGIUM.

THE Section of Anthropology and Psychology of the New York Academy of Sciences met in conjunction with the New York Branch of the American Psychological Association, at Columbia University, on February 28. The following papers were read: "Tests of Manual Accuracy in Pre-Vocational School Boys," Mr. R. L. Gould; "Association and Classification," Dr. G. C. Myers; "Tests of the Memory of School Children," Miss E. F. Mulhall; "An Experiment in the Learning Process," Dr. C. L. Robbins; "Tests of Mechanical Ability," Mr. J. L. Stenquist.

PROFESSOR WILLIAM STERN, of Breslau, has received a call from Hamburg to fill the chair of philosophy and psychology vacant by the death of Professor Ernst Meumann.

PROFESSOR LAWRENCE J. HENDERSON has been giving a course of five public lectures, at Harvard University, on "Teleology and Natural Science."